IN THE CLAIMS:

Please amend the claims as follows:

1. - 18. (Cancelled)

Please add the following new claims:

19. (New) A method of monitoring an optical signal to noise ratio (OSNR) in a network, comprising:

receiving an input signal at a first filter of an optical add/drop multiplexer;

dropping a first signal from the input signal via a first drop channel of the optical add/drop multiplexer;

tapping a portion of the first signal and converting the portion of the first signal to a digital signal;

sampling a plurality of data points in the digital signal continuously at a sampling frequency;

determining an average power of the sampled points;

calculating a noise spectrum density based upon the sampled points; and

determining the optical signal to noise ratio from the noise spectrum density and the average power of the sampled points.

20. (New) The method of Claim 19, further comprising receiving the input signal at a second filter of the optical add/drop multiplexer and dropping a second signal from the input signal via a second drop channel of the optical add/drop multiplexer.

21. (New) The method of Claim 20, wherein the first drop channel and the second drop channel are connected sequentially.

22. (New) The method of Claim 20, further comprising tapping a portion of the second signal and analyzing the portion to determine the optical signal to noise ratio.

23. (New) The method of Claim 19, further comprising computing the average optical power from a pre-saved calibration table.

24. (New) The method of Claim 19, wherein the computing of the OSNR is based on the following equation:

$$OSNR = \frac{p_{sig}}{P_{ase}} \frac{B_o}{R}$$

where the symbol "P_{sig}" denotes a signal power of the sampled points, the symbol "P_{ase}" denotes an Amplified Spontaneous Emission (ASE) power of the sampled points, the symbol "B_o" denotes a filter band width, and the symbol "R" denotes a wavelength resolution.

25. (New) The method of Claim 19, wherein the plurality of data points is approximately 1024 points.

26. (New) The method of Claim 19, wherein the plurality of data points is sampled for a predetermined amount of time.

27. (New) The method of Claim 19, wherein the predetermined amount of time is 10 ms.

28. (New) A method of monitoring an optical signal to noise ratio (OSNR) in a network, comprising:

receiving an input signal at a first filter of an optical add/drop multiplexer;

dropping a first signal from the input signal via a first drop channel of the optical add/drop multiplexer;

tapping a portion of the first signal and analyzing the portion of the first signal to determine the optical signal to noise ratio;

receiving the input signal at a second filter of the optical add/drop multiplexer;

dropping a second signal from the input signal via a second drop channel of the optical add/drop multiplexer; and

tapping a portion of the second signal and analyzing the portion to determine the optical signal to noise ratio.

29. (New) The method of Claim 28, wherein analyzing the portion of the first signal to determine the optical signal to noise ratio comprises:

converting the portion of the first signal to a digital signal;

sampling a plurality of data points in the digital signal continuously at a frequency;

determining an average power of the sampled points;

calculating a noise spectrum density based on the sampled points; and

determining the optical signal to noise ratio from the noise spectrum density and the average power of the sampled points.

30. (New) The method of Claim 28, wherein analyzing the portion of the first signal to determine the optical signal to noise ratio comprises:

selecting a frequency range based on network traffic protocol and transmission rate;

converting the portion of the first signal to a digital signal;

sampling 1024 points in the digital signal continuously at a sampling frequency;

determining an average power of the points;

generating a spectrum in the frequency domain utilizing a Fast Fourier Transform;

generating a noise spectrum density from the spectrum and the frequency range; and

calculating the optical signal to noise ratio from the noise spectrum density and the average sampled points.

31. (New) The method of Claim 28, wherein the first drop channel and the second drop channel are connected sequentially.

32. (New) The method of Claim 28, wherein the optical signal to noise ratio is based on the following equation:

$$OSNR = \frac{P_{sig}}{P_{ase}} \frac{B_o}{R}$$

where the symbol "P_{sig}" denotes a signal power of the sampled points, the symbol "P_{ase}" denotes an Amplified Spontaneous Emission (ASE) power of the sampled points, the symbol "B_o" denotes a filter band width, and the symbol "R" denotes a wavelength resolution.

33. (New) A method of monitoring an optical signal to noise ratio (OSNR) in a network from a dropped channel in an optical add/drop multiplexer, comprising

dropping a first signal from an input signal via a first drop channel of the optical add/drop multiplexer;

tapping a portion of the first signal and converting the portion of the fist signal to a digital signal;

sampling data points in the digital signal continuously at a sampling frequency;

determining an average power of the sampled points;

calculating a noise spectrum density based upon the sampled points; and

determining the optical signal to noise ratio from the noise spectrum density and the average power of the sampled points.

34. (New) The method of Claim 33, further comprising dropping a second signal from the input signal via a second drop channel of the optical add/drop multiplexer.

35. (New) The method of Claim 34, wherein the first and second drop channels are connected sequentially.